AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior listing of claims in this application.

1. (Currently amended) An image sensor pixel comprising:

a semiconductor substrate;

a photoconversion device formed within said semiconductor substrate; [[and]]

a dielectric layer formed over said photoconversion device; and

a mesh optical filter positioned over said dielectric layer and photoconversion device for passing light of a specific wavelength to said photoconversion device.

2. (Currently amended) The image sensor pixel of claim 1, wherein said mesh optical filter comprises apertures that are sized to pass light of a specific wavelength to said photoconversion device.

3. (Original) The image sensor pixel of claim 1, wherein the image sensor is a CMOS image sensor.

4. (Original) The image sensor pixel of claim 1, wherein the image sensor is a CCD image sensor.

5. (Currently amended) The image sensor pixel of claim 1, wherein said mesh optical filter is formed from a metal layer deposited and patterned to interconnect image sensor circuitry.

6. (Original) The image sensor pixel of claim 5, wherein said metal layer has a thickness of about 70 nm to about 150 nm.

7. (Original) The image sensor pixel of claim 5, wherein said metal layer has a thickness of about 100 nm.

8. (Original) The image sensor pixel of claim 5, wherein said metal layer is formed of a material comprising at least one of aluminum, silver, copper, and gold.

9. (Original) The image sensor pixel of claim 2, wherein said apertures are circular.

10. (Original) The image sensor pixel of claim 2, wherein said apertures are rectangular.

11. (Original) The image sensor pixel of claim 2, wherein said apertures are triangular.

12. (Original) The image sensor pixel of claim 2, wherein said apertures pass visible light to said photoconversion device.

13. (Original) The image sensor pixel of claim 2, wherein said apertures have a size of about 400 nm to about 700 nm.

14. (Original) The image sensor pixel of claim 13, wherein said apertures have a size of about 475 nm.

15. (Original) The image sensor pixel of claim 13, wherein said apertures have a size of about 525 nm.

16. (Original) The image sensor pixel of claim 13, wherein said apertures have a size of about 650 nm.

17. (Original) The image sensor pixel of claim 2, wherein said apertures pass non-visible light to said photoconversion device.

18. (Original) The image sensor pixel of claim 17, wherein said apertures pass infrared light to said photoconversion device.

19. (Original) The image sensor pixel of claim 17, wherein said apertures pass near-infrared light to said photoconversion device.

20. (Currently amended) The image sensor pixel of claim 1, wherein said mesh optical filter is made of metal.

21. (Currently amended) An image sensor pixel comprising:

a semiconductor substrate;

a photoconversion device formed within said semiconductor substrate;

a dielectric layer formed over said photoconversion device;

a first mesh optical filter positioned over said dielectric layer and photoconversion device for passing light of a specific wavelength to said photoconversion device; and

at least one additional mesh optical filter positioned over said first mesh optical filter for passing light of a specific wavelength to said photoconversion device.

22. (Currently amended) The image sensor pixel of claim 21, wherein each said mesh optical filter comprises a plurality of apertures that are sized to pass light of a specific wavelength.

23. (Currently amended) The image sensor pixel of claim 22 wherein each said mesh optical filter is formed from a corresponding metal layer deposited and patterned to interconnect image sensor circuitry.

24. (Original) The image sensor pixel of claim 23 wherein each said corresponding metal layer has a thickness of about 70 nm to about 150 nm.

25. (Original) The image sensor of claim 23 wherein each said corresponding metal layer is formed of a material comprising at least one of aluminum, silver, copper, and gold.

26. (Currently amended) An image sensor comprising:

an array of pixels, each pixel comprising a photoconversion device and a dielectric layer formed over said photoconversion device; and

a plurality of metal mesh optical filters respectively formed over said pixels, each metal mesh optical filter passing light of one of three colors to a respective photoconversion device.

27. (Currently amended) The image sensor of claim 26, wherein each metal mesh optical filter passes one of red, blue, and green light.

28. (Currently amended) The image sensor of claim 26, wherein each metal mesh optical filter passes one of cyan, magenta, and yellow light.

29. (Currently amended) The image sensor of claim 26, wherein said metal mesh optical filters are arranged in a Bayer pattern.

30. (Currently amended) The image sensor of claim 26, wherein each metal mesh optical filter is formed of a material comprising at least one of aluminum, silver, copper, and gold.

31. (Currently amended) The image sensor of claim 26, wherein said metal mesh optical filters are formed from a metal layer deposited and patterned to interconnect imager circuitry.

32. (Original) The image sensor of claim 31, wherein said metal layer has a thickness of about 70 nm to about 150 nm.

33. (Original) The image sensor of claim 31, wherein said metal layer has a thickness of about 100 nm.

34. (Currently amended) The imager sensor of claim 26, wherein each metal mesh optical filter is formed from a metal layer deposited and patterned to provide said metal mesh optical filter.

35. (Original) The image sensor of claim 26, wherein the image sensor is a CMOS image sensor.

36. (Original) The image sensor of claim 26, wherein the image sensor is a CCD image sensor.

37. (Currently amended) The image sensor of claim 26, wherein said metal mesh optical filters comprise apertures which pass light of a specific wavelength to said photoconversion devices.

38. (Original) The image sensor of claim 37, wherein said apertures are circular.

39. (Original) The image sensor of claim 37, wherein said apertures are rectangular.

40. (Original) The image sensor of claim 37, wherein said apertures are triangular.

41. (Original) The image sensor of claim 37, wherein said apertures have a size of about 400 nm to about 700 nm.

42. (Original) The image sensor of claim 41, wherein said apertures have a size of about 475 nm.

43. (Original) The image sensor of claim 41, wherein said apertures have a size of about 525 nm.

44. (Original) The image sensor of claim 41, wherein said apertures have a size of about 650 nm.

45. (Currently amended) An image sensor system comprising:

an array of pixels, each pixel comprising a photoconversion device and a dielectric layer formed over said photoconversion device; and

a plurality of metal mesh optical filters formed over said pixels, each metal mesh optical filter passing light of one of a plurality of colors to a respective photoconversion device.

46. (Currently amended) The image sensor system of claim 45, wherein each metal mesh optical filter passes one of red, blue, and green light.

47. (Currently amended) The image sensor system of claim 45, wherein each metal mesh optical filter passes one of cyan, magenta, and yellow light.

48. (Currently amended) The image sensor system of claim 45, wherein said metal mesh optical filters are arranged in a Bayer pattern.

49. (Currently amended) The image sensor system of claim 45, wherein each metal mesh optical filter is formed of a material comprising at least one of aluminum, silver, copper, and gold.

50. (Currently amended) The image sensor system of claim 45, wherein said metal mesh optical filters are formed from a metal layer deposited and patterned to interconnect imager circuitry.

51. (Original) The image sensor system of claim 50, wherein said metal layer has a thickness of about 70 nm to about 150 nm.

52. (Original) The image sensor system of claim 50, wherein said metal layer has a thickness of about 100 nm.

53. (Currently amended) The image sensor system of claim 45, wherein each metal mesh optical filter is formed from a metal layer deposited and patterned to provide said metal mesh optical filter.

54. (Original) The image sensor system of claim 45, wherein the image sensor is a CMOS image sensor.

55. (Original) The image sensor system of claim 45, wherein the image sensor is a CCD image sensor.

56. (Currently amended) The image sensor system of claim 45, wherein said metal mesh optical filters comprise apertures which pass light of a specific wavelength to said photoconversion devices.

57. (Original) The image sensor system of claim 56, wherein said apertures are circular.

58. (Original) The image sensor system of claim 56, wherein said apertures are rectangular.

59. (Original) The image sensor system of claim 56, wherein said apertures are triangular.

60. (Original) The image sensor system of claim 56, wherein said apertures have a size of about 400 nm to about 700 nm.

61. (Original) The image sensor system of claim 60, wherein said apertures have a size of about 475 nm.

62. (Original) The image sensor system of claim 60, wherein said apertures have a size of about 525 nm.

63. (Original) The image sensor system of claim 60, wherein said apertures have a size of about 650 nm.

64. (Currently amended) A method of forming an image sensor pixel cell comprising the steps of:

forming a photoconversion device within a semiconductor substrate; [[and]]

forming a dielectric layer over said photoconversion device; and

forming a mesh optical filter over said dielectric layer and photoconversion device for passing light of a specific wavelength to said photoconversion device.

65. (Currently amended) The method of claim 64, wherein said mesh optical filter comprises apertures that are sized to pass light of a specific wavelength to said photoconversion device.

66. (Currently amended) The method of claim 64 further comprising the step of forming at least one metal layer over said substrate, wherein said mesh optical filter is formed as part of said metal layer.

67. (Original) The method of claim 66, wherein said metal layer is formed to a thickness of about 70 nm to about 150 nm.

68. (Original) The method of claim 66, wherein said metal layer is formed to a thickness of about 100 nm.

69. (Original) The method of claim 64, wherein said metal layer is formed of a material comprising at least one of aluminum, silver, copper, and gold.

70. (Original) The method of claim 64, wherein said apertures are circular.

71. (Original) The method of claim 64, wherein said apertures are rectangular.

72. (Original) The method of claim 64, wherein said apertures are triangular.

73. (Original) The method of claim 64, wherein said apertures pass visible light to said photoconversion device.

74. (Original) The method of claim 64, wherein said apertures are formed to a size of about 400 nm to about 700 nm.

75. (Original) The method of claim 74, wherein said apertures are formed to a size of about 475 nm.

76. (Original) The method of claim 74, wherein said apertures are formed to a size of about 525 nm.

77. (Original) The method of claim 74, wherein said apertures are formed to a size of about 650 nm.

78. (Currently amended) A method of forming an image sensor comprising the steps of:

forming an array of pixels, each pixel comprising a photoconversion device and a dielectric layer formed over said photoconversion device; and

forming a plurality of metal mesh optical filters over said pixels, each metal mesh optical filter passing light of one of three colors to a respective photoconversion device.

79. (Currently amended) The method of claim 78, wherein said metal mesh optical filters each pass one of red, blue, and green light.

80. (Currently amended) The method of claim 78, wherein said metal mesh optical filters each pass one of cyan, magenta, and yellow light.

81. (Currently amended) The method of claim 78, wherein said metal mesh optical filters are arranged in a Bayer pattern.